Notic of Allowability	Application No. 10/074,941	Applicant(s) LI ET AL.	
	Examiner Cam Y T Truong	Art Unit 2162	

-- The MAILING DATE of this communication appears on the cov r sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *9/21/2004*.

2. ☒ The allowed claim(s) is/are *1-4,6-18,20-32,34-46 and 48-56*.

3. ☒ The drawings filed on *11 February 2002* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Mohammad Ali
Primary Examiner
A.U. 2167

DETAILED ACTION

1. Claims 1-4, 6-18, 20-32, 34-46, and 48-56 are pending in this Office Action.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brian, Hart, Registration No. 44,421 on 12/28/2004.

In the claims:

Please replace original claims 1, 6, 15, 20, 29, 34, 43, and 48 with amended claims 1, 6, 15, 20, 29, 34, 43 and 48.

Please cancel claims 5, 19, 33, and 47.

1. (Currently Amended) A computer-implemented method for image retrieval using a statistical bigram correlation model, the method comprising:

receiving a plurality of images responsive to multiple search sessions;

determining whether the images are semantically relevant images via relevance feedback;

estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image;

wherein the respective semantic correlation is performed offline or online to calculate unigram and bigram frequencies from relevance feedback information, the unigram frequency being based on relevance feedback to a session of the multiple search sessions, the unigram frequency indicating that each respective image of the images is either semantically relevant to the session, semantically less relevant to the session, or a non-feedback image with respect to the session; and

wherein each respective bigram frequency is based on a pair of unigram frequencies.

6. (Currently Amended) A method as recited in claim 1, wherein estimating the respective semantic correlation further comprises:

associating a respective unigram frequency with each of the images, the unigram frequency indicating that each respective image of the images is either semantically relevant, semantically less relevant, or a non-feedback image, the unigram frequency being based on relevance feedback to a session of the multiple search session.

15. (Currently Amended) A computer-readable medium for image retrieval using a statistical bigram correlation model, the computer-readable medium comprising computer-executable instructions for:

receiving a plurality of images responsive to multiple search sessions;

determining whether the images are semantically relevant images via relevance feedback;

estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency representing a probability of whether two of the images are semantically related to one-another based on a co-occurrence frequency that each image of the two images was relevant in a previous query/feedback session;

wherein the respective semantic correlation is performed offline or online to calculate unigram and bigram frequencies from relevance feedback information, the unigram frequency being based on relevance feedback to a session of the multiple search sessions, the unigram frequency indicating that each respective image of the images is either semantically relevant to the session, semantically less relevant to the session, or a non-feedback image with respect to the session; and

wherein each respective bigram frequency is based on a pair of unigram frequencies.

20. (Currently Amended) A computer-readable medium as recited in claim 15, wherein estimating the respective semantic correlation further comprises instructions for:

associating a respective unigram frequency with each of the images, the unigram frequency indicating that each respective image of the images is either semantically relevant, semantically less relevant, or a non-feedback image, the unigram frequency being based on relevance feedback to a session of the multiple search sessions.

29. (Currently Amended) A computing device for image retrieval using a statistical bigram correlation model, the computing device comprising:

a processor; and

a memory coupled to the processor, the memory comprising computer-executable instructions that are fetched and executed by the processor for:

receiving a plurality of images responsive to multiple search sessions;

determining whether the images are semantically relevant images via relevance feedback;

estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image;

wherein the respective semantic correlation is performed offline or online to calculate unigram and bigram frequencies from relevance feedback information, the unigram frequency being based on relevance feedback to a session of the multiple search sessions, the unigram frequency indicating that each respective image of the images is either semantically relevant to the session, semantically less relevant to the session, or a non-feedback image with respect to the session; and

wherein each respective bigram frequency is based on a pair of unigram frequencies.

34. (Currently Amended) A computing device as recited in claim 29, wherein estimating the respective semantic correlation further comprises instructions for:

associating a respective unigram frequency with each of the images, the unigram frequency indicating that each respective image of the images is either semantically relevant, semantically less relevant, or a non-feedback image, the unigram frequency being based on relevance feedback to a session of the multiple search sessions.

43 (Currently Amended) A computing device image retrieval using a statistical bigram correlation model, the computing device comprising:

processing means for:

receiving a plurality of images responsive to multiple search sessions;

determining whether the images are semantically relevant images via relevance feedback;

estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image;

wherein the respective semantic correlation is performed offline or online to calculate unigram and bigram frequencies from relevance feedback information, the unigram frequency being based on relevance feedback to a session of the multiple search sessions, the unigram frequency indicating that each respective image of the images is either semantically relevant to the session, semantically less relevant to the session, or a non-feedback image with respect to the session; and

wherein each respective bigram frequency is based on a pair of unigram frequencies.

48. (Currently Amended) A computing device as recited in claim 43, wherein the processing means for estimating the respective semantic correlation further comprises means for:

associating a respective unigram frequency with each of the images, the unigram frequency indicating that each respective image of the images is either semantically relevant, semantically less relevant, or a non-feedback image, the unigram frequency being based on relevance feedback to a session of the multiple search sessions.

Allowable Subject Matter

3. Claims 1-4, 6-18, 20-32, 34-46 and 48-56 are allowed.

The prior art of record, alone or in combination, does not teach or fairly suggest the combination of steps as recited in independent claims 1, 15, 29 and 43 wherein "wherein the respective semantic correlation is performed offline or online to calculate unigram and bigram frequencies from relevance feedback information, the unigram frequency being based on relevance feedback to a session of the multiple search sessions, the unigram frequency indicating that each respective image of the images is either semantically relevant to the session, semantically less relevant to the session, or a non-feedback image with respect to the session; wherein each respective bigram frequency is based on a pair of unigram frequencies".

The dependent claims, bring definite, further limiting, and fully enabled by the specification are also allowed.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cam Y T Truong whose telephone number is (571) 272-4042 . The examiner can normally be reached on Monday to Firday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cam-Y Truong

1/5/2005

Mohammad Ali
Primary Examiner
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